09/472,691

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USPT	suicide gene or suicide protein	91	L7
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USPT	interleuk$	8836	L5
USPT	interferon gamma or INF adj gamma	1683	L4
USPT	tumor necrosis factor alpha or TNF adj alpha	2107	L3

USPT	tumor necrosis factor alpha and interferon gamma and interleukin and cell suicide protein and cytosine deaminase and thymidine kinase and mip-3	0	L2
USPT	E1B deletion same adenovir$	2	L1

Document Number 2

Entry 2 of 2 File: USPT Jul 1, 1997

DOCUMENT-IDENTIFIER: US 5643567 A
TITLE: Methods for the suppression of neu mediated tumors by adenoviral E1A and SV40 large T antigen

DEPR:
Replication-deficient adenovirus represents a gene delivery system that should be able to efficiently transfer an exogenous gene directly to tumor cells in vivo. Unlike vectors that require target cell replication for gene transfer, such as retrovirus which can aonly infect proliferating cells, adenovirus can transfer genes into both proliferating and non-proliferating cells. The extrachromosomal location of adenovirus in the cells (non-integration) decreases the chance of activating cellular oncogenes. A high titer of adenovirus is easily produced and purified. Replication-deficient adenovirus containing E1A was constructed by E3 and E1B deletion matant (E1B and E3 is required for adenovirus replication), control virus was constructed by additional E1A deletion mutant.

Document Number 1

Entry 1 of 2 File: USPT Sep 29, 1998

DOCUMENT-IDENTIFIER: US 5814315 A
TITLE: Methods for the suppression of neu mediated phenotype in tumors

DEPR:
Replication-deficient adenovirus represents a gene delivery system that should be able to efficiently transfer an exogenous gene directly to tumor cells in vivo. Unlike vectors that require target cell replication for gene transfer, such as retrovirus which can only infect proliferating cells, adenovirus can transfer genes into both proliferating and non-proliferating cells. The extrachromosomal location of adenovirus in the cells (non-integration) decreases the chance of activating cellular oncogenes. A high titer of adenovirus is easily produced and purified. Replication-deficient adenovirus containing E1A was constructed by E3 and E1B deletion matant (EBB and E3 is required for adenovirus replication), control virus was constructed by additional E1A deletion mutant.

Document Number 1

Entry 1 of 4 File: USPT Mar 28, 2000

DOCUMENT-IDENTIFIER: US 6043086 A
TITLE: Neurotactin and uses therefor

BSPR:
In chemokines of the C-C family, the first two cysteines are adjacent to one another. Members of this family are chemotactic for monocytes, but not neutrophils. Recent studies have shown that they are capable of activating basophils and eosinophils. Proteins belonging to the C-C class of chemokines include monocyte chemotactic proteins 1, 2, and 3 (MCP-1, MCP-2, and MCP-3), RANTES, and macrophage inflammatory proteins .alpha. and .beta. (MIP-1.alpha. and MIP-1.beta.). Recently, three additional C-C chemokines, MIP-3, MIP-4, and MIP-1.gamma., have been described (see PCT Publication No. WO 95/17092). All known C-C chemokines have been mapped to human chromosome 17 and mouse chromosome 11.

BSPR:
The invention also features a substantially pure polypeptide which includes a first portion and a second portion; the first portion includes a neurotactin polypeptide and the second portion includes a detectable marker. Examples of detectable markers include .beta.-lactamase, chloramphenicol acetyltransferase (CAT), alkaline phosphatase (AP), adenosine deaminase (ADA), aminoglycoside phosphotransferase (neo.sup.r, G418.sup.r), dihydrofolate reductase (DHFR), hygromycin-B-phosphotransferase (HPH), thymidine kinase (TK), .beta.-galactosidase, and xanthine guanine phosphoribosyl-transferase (XGPRT).

DEPR:
A number of other selection systems can be used, including but not limited to the herpes simplex virus thymidine kinase, hypoxanthine-guanine phosphoribosyl-transferase, and adenine phosphoribosyltransferase genes can be employed in tk, hgprt, or aprt cells, respectively. In addition, gpt, which confers resistance to mycophenolic acid (Mulligan et al., Proc. Natl. Acad. Sci. USA 78:2072, 1981); neo, which confers resistance to the aminoglycoside G-418 (Colberre-Garapin et al., J. Mol. Biol. 150:1,

1981); and hygro, which confers resistance to hygromycin (Santerre et al., Gene 30:147, 1981), can be used.

DEPR:
Such vectors can be constructed by recombinant DNA technology methods standard in the art. Vectors can be plasmid, viral, or others known in the art, used for replication and expression in mammalian cells. Expression of the sequence encoding the antisense RNA can be by any promoter known in the art to act in mammalian, preferably human cells. Such promoters can be inducible or constitutive. Such promoters include, but are not limited to: the SV40 early promoter region (Bernoist et al., Nature 290:304, 1981); the promoter contained in the 3' long terminal repeat of Rous sarcoma virus (Yamamoto et al., Cell 22:787-797, 1988); the herpes thymidine kinase promoter (Wagner et al., Proc. Natl. Acad. Sci. USA 78:1441, 1981); or the regulatory sequences of the metallothionein gene (Brinster et al., Nature 296:39, 1988).

Document Number 2

Entry 2 of 4 File: USPT Jan 11, 2000

DOCUMENT-IDENTIFIER: US 6013257 A
TITLE: Neurotactin and uses therefor

BSPR:
In the C--C family, the first two cysteines are adjacent to one another. Members of this family are chemotactic for monocytes, but not neutrophils. Recent studies have shown that they are capable of activating basophils and eosinophils. Proteins belonging to the C--C class of chemokines include monocyte chemotactic proteins 1, 2, and 3 (MCP-1, MCP-2, and MCP-3), RANTES, and macrophage inflammatory proteins .alpha. and .beta. (MIP-1.alpha. and MIP-1.beta.). Recently, MIP-3, MIP-4, and MIP-1.gamma. have also been described (WO 95/17092). All known C--C chemokines have been mapped to human chromosome 17 and mouse chromosome 11.

BSPR:
The invention also features a substantially pure polypeptide which includes a first portion and a second portion; the first portion includes a neurotactin polypeptide the second portion includes a detectable marker. Examples of detectable markers include .beta.-lactamase, chloramphenicol acetyltransferase (CAT), adenosine deaminase (ADA), aminoglycoside phosphotransferase (neo.sup.r, G418.sup.r) dihydrofolate reductase (DHFR), hygromycin-B-phosphotransferase (HPH), thymidine kinase (TK), .beta.-galactosidase, and xanthine guanine phosphoribosyl-transferase (XGPRT).

DEPR:
A number of other selection systems can be used, including but not limited to the herpes simplex virus thymidine kinase, hypoxanthine-guanine phosphoribosyltransferase, and adenine phosphoribosyltransferase genes can be employed in tk, hgprt, or aprt cells, respectively. In addition, gpt, which confers resistance to mycophenolic acid (Mulligan et al., Proc. Natl. Acad. Sci. USA 78:2072, 1981); neo, which confers resistance to the aminoglycoside G-418 (Colberre-Garapin et al., J. Mol. Biol. 150:1, 1981); and hygro, which confers resistance to hygromycin (Santerre et al., Gene 30:147, 1981), can be used.

DEPR:
Such vectors can be constructed by recombinant DNA technology methods standard in the art. Vectors can be plasmid, viral, or others known in the art, used for replication and expression in mammalian cells. Expression of the sequence encoding the antisense RNA can be by any promoter known in the art to act in mammalian, preferably human cells. Such promoters can be inducible or constitutive. Such promoters include, but are not limited to: the SV40 early promoter region (Bernoist et al., Nature 290:304, 1981); the promoter contained in the 3' long terminal repeat of Rous sarcoma virus (Yamamoto et al., Cell 22:787-797, 1988); the herpes thymidine kinase promoter (Wagner et al., Proc. Natl. Acad. Sci. USA 78:1441, 1981); or the regulatory sequences of the metallothionein gene (Brinster et al., Nature 296:39, 1988).

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
WO 95/17092	June 1995	WO
WO 95/32282	November 1995	WO

OTHER PUBLICATIONS

Baggiolini et al., "CC chemokines in allergic inflammation" Immun. Today 15:(3)127-133, 1994.
Barthalay et al., "Drosophila neurotactin mediates heterophilic cell Adhesion" EMBO Journal 9:(11)3603-3609, 1990.
Burkly et al., "T-Cell tolerance by clonal anergy in transgenic mice with nonlymphoid expression: . . . " Nature 342:564-566, 1989.
Cocket et al., "The use of engineered E1A genes to transactivate the hCMV-MIE promoter in permanent CHO cell lines" Nucl. Acids Res. 19:319-325, 1991.
Kelner et al., "Lymphotactin: A cytokine that represents a new class of cemokine" Science 266:1395-1399, 1994.
Massague et al., "Membrane-Anchored Growth Factors" Annu. Rev. Biochem. 62:515-41, 1993.
Owens et al., "Inflammatory cytokines in the brain: does the CNS shape immune responses?" Immun. Today 15: (12)566-571, 1994.
Pan et al., "Neurotactin, a membrane-anchored chemokine upregulated in brain inflammation" Nature 387: 611-617, 1997.
Rowland, L., "Blood-Brain Barrier, Cerbrospinal Fluid, Brain Edema, and Hydrocephalus" Appendix, Brain Fluids and Their Disorders, pp. 837-844.
Santiago et al., "Characterization and gene cloning of neurotactin, a Drosophila transmembrane protein related to cholinesterases" EMBO Journal 9:3593-3601, 1990.

ART-UNIT: 164
PRIMARY-EXAMINER: Saunders; David
ASSISTANT-EXAMINER: VanderVegt; F. Pierre
ATTY-AGENT-FIRM: Fish & Richardson P.C.

ABSTRACT:

The present invention relates to the identification and characterization of a novel, membrane-anchored chemokine, neurotactin. Sequence analysis of neurotactin reveals that, while it includes an amino terminal domain which resembles that of other chemokines, it has an overall structure which distinguishes it from all presently identified chemokines. Neurotactin is highly expressed in normal mammalian brain. Inhibitors of neurotactin expression or activity can be used to treat inflammation.

4 Claims, 13 Drawing figures

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image

☐ 2. Document ID: US 6013257 A

Entry 2 of 4 File: USPT Jan 11, 2000

US-PAT-NO: 6013257
DOCUMENT-IDENTIFIER: US 6013257 A

TITLE: Neurotactin and uses therefor
DATE-ISSUED: January 11, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Pan; Yang	Brookline	MA	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Millennium BioTherapeutics, Inc.	Cambridge	MA	N/A	N/A	02

APPL-NO: 8/ 991426
DATE FILED: December 16, 1997
PARENT-CASE:
This application is a continuation-in-part of U.S. Ser. No. 08/851,160, filed May 5, 1997, which is a continuation-in-part of U.S. Ser. No. 08/643,798 filed May 7, 1996.

INT-CL: [6] A61K 39/395, A61K 39/00, C07K 16/24
US-CL-ISSUED: 424/139.1; 424/130.1, 424/152.1, 424/172.1, 424/810, 530/387.9, 530/868
US-CL-CURRENT: 424/139.1; 424/130.1, 424/152.1, 424/172.1, 424/810, 530/387.9, 530/868
FIELD-OF-SEARCH: 424/130.1, 424/152.1, 424/172.1, 424/139.1, 424/810, 530/387.9, 530/868

REF-CITED:

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
WO 95/17092	June 1995	WO
WO 95/32282	November 1995	WO

OTHER PUBLICATIONS

Baggiolini et al., "CC chemokines in allergic inflammation" Immun. Today 15:(3)127-133, 1994.
Barthalay et al., "Drosophila neurotactin mediates heterophilic cell Adhesion" EMBO Journal 9:(11)3603-3609, 1990.
Burkly et al., "T-Cell tolerance by clonal anergy in transgenic mice with nonlymphoid expression: . . . " Nature 342:564-566, 1989.
Cocket et al., "The use of engineered E1A genes to transactivate the hCMV-MIE promoter in permanent CHO cell lines" Nucl. Acids Res. 19:319-325, 1991.
Kelner et al., "Lymphotactin: A cytokine that represents a new class of chemokine" Science 266:1395-1399, 1994.

Massague et al., "Membrane-Anchored Growth Factors" Annu. Rev. Biochem. 62:515-41, 1993.
Owens et al., "Inflammatory cytokines in the brain: does the CNS shape immune responses?" Immun. Today 15:(12)566-571, 1994.
Pan et al., "Neurotactin, a membrane-anchored chemokine upregulated in brain inflammation" Nature 387:611-617, 1997.
Rowland, L., "Blood-Brain Barrier, Cerbrospinal Fluid, Brain Edema, and Hydrocephalus" Appendix I, Brain Fluids and Their Disorders, pp. 837-844.
Santiago et al., "Characterization and gene cloning of neurotactin, a Drosophila transmembrane protein related to cholinesterases" EMBO Journal 9:3593-3601, 1990.
Brocke, S et al. Experimental autoimmune encephalomyelitis in the mouse. in: Autoimmune Disease Models: A Guidebook. Cohen and Miller, eds. Academic Press, San Diego, CA. pp. 1-14, 1994.
Swanborg, RH. Clin. Immunol. Immunopath. 77(1):4-13, Oct. 1995.

ART-UNIT: 164
PRIMARY-EXAMINER: Saunders; David
ASSISTANT-EXAMINER: VanderVegt; F. Pierre
ATTY-AGENT-FIRM: Fish & Richardson, P.C.

ABSTRACT:

The present invention relates to a method for the treatment of multiple sclerosis comprising administering to a patient an antibody which binds to neurotactin. Neurotactin is a membrane-anchored chemokine which is highly expressed in normal mammalian brain.

4 Claims, 8 Drawing figures

☐ 3. Document ID: US 6001606 A

Entry 3 of 4 File: USPT Dec 14, 1999

US-PAT-NO: 6001606
DOCUMENT-IDENTIFIER: US 6001606 A

TITLE: Polynucleotides encoding myeloid progenitor inhibitory factor-1 (MPIF-1) and polypeptides encoded thereby
DATE-ISSUED: December 14, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ruben; Steven M.	Olney	MD	N/A	N/A
Li; Haodong	Gaithersburg	MD	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Human Genome Sciences, Inc.	Rockville	MD	N/A	N/A	02

APPL-NO: 8/ 722719
DATE FILED: September 30, 1996
PARENT-CASE:
CROSS-REFERENCE TO RELATED APPLICATIONS The present application is a continuation-in-part of Ser. No. 08/446,881, filed May 5, 1995 now abandoned, a continuation-in-part of Ser. No. 08/465,682, filed Jun. 6, 1995 now abandoned, a continuation-in-part of Ser. No. 08/468,775, filed Jun. 6, 1995 now abandoned, and a continuation-in-part of PCT/US96/15592, filed Sep. 27, 1996, each of which is herein incorporated by reference; said Ser. Nos. 08/465,682 and 08/468,775 are continuations-in-part of Ser. No. 08/446,881, filed May 5, 1995 now abandoned, and are continuations-in-part of Ser. No. 08/208,339, filed Mar. 8, 1994 now U.S. Pat. No. 5,504,003, each of which is herein incorporated by reference; said Ser. No. 08/446,881 is a continuation-in-part of said Ser. No. 08/208,339; said PCT/US96/15592 claims priority to provisional application 60/004,517, filed Sep. 29, 1995, which is herein incorporated by reference.

INT-CL: [6] C12N 15/19, C12N 5/10, C12N 15/63, C07K 14/52
US-CL-ISSUED: 435/69.5; 435/71.2, 435/325, 435/252.3, 435/254.11, 435/320.1, 435/471 , 930/140, 424/85.1, 536/23.1, 536/23.5
US-CL-CURRENT: 435/69.5; 424/85.1, 435/252.3, 435/254.11, 435/320.1, 435/325, 435/471 , 435/71.2, 536/23.1, 536/23.5, 930/140
FIELD-OF-SEARCH: 530/300, 530/326, 530/327, 530/328, 530/329, 530/351, 435/69.5, 435/71.1, 435/71.2, 435/325, 435/252.3, 435/254.11, 435/320.1, 435/471, 536/23.1, 536/23.5, 930/140, 514/2, 514/8, 514/12, 424/85.1

REF-CITED:

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PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
5346686	September 1994	Lyle et al.	424/1.41
5504003	April 1996	Li et al.	435/240.2
5556767	September 1996	Rosen et al.	435/69.1

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FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
43 44 397 A1	July 1995	DE
44 27 395 A1	February 1996	DE
WO 90/02762	March 1990	WO
WO 91/04274	April 1991	WO
WO 92/00327	January 1992	WO
WO 92/00326	January 1992	WO
WO 92/05198	April 1992	WO
WO 92/13533	August 1992	WO
WO 92/20372	November 1992	WO
WO 93/09799	May 1993	WO
WO 95/17092	June 1995	WO
WO 95/18228	July 1995	WO
WO 96/16979	June 1996	WO
WO 96/22374	July 1996	WO
WO 96/32481	October 1996	WO
WO 96/34891	November 1996	WO
WO 97/12041	April 1997	WO
WO 97/15594	May 1997	WO
WO 98/14582	April 1998	WO

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Weber, M. et al., "Deletion of the NH.sub.2 -Terminal Residue Converts Monocyte Chemotatic Protein 1 from an Activator of Basophil Mediator Release to an Eosinophil Chemoattractant," J. Exp. Med. 183:681-685 (1996).
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Sudo, K. et al., "2058 Expressed Sequence Tags (ESTs) from a Human Fetal Ling cDNA Library," Genomics 24(2):276-279 (Nov. 1994).
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Yoshida, T. et al., "Molecular cloning of a novel C or Y type chemokine, SCM-1," FEBS Letters 360:155-159 (Feb. 1995).
Zipfel, P. F. et al., "Mitogenic Activation of Human T Cells Induces Two Closely Related Genes Which Share Structural Similarities with a New Family of Secreted Factors," J. Immunol. 142:1582-1590 (1989).
International Search Report for US 95/09058.

ART-UNIT: 166
PRIMARY-EXAMINER: Mertz; Prema
ATTY-AGENT-FIRM: Sterne, Kessler, Goldstein & Fox, P.L.L.C.

ABSTRACT:

There are disclosed therapeutic compositions and methods using isolated nucleic acid molecules encoding a human myeloid progenitor inhibitory factor-1 (MPIF-1) polypeptide (previously termed MIP-3 and chemokine .beta.8(CK.beta.8 or ckb-8)); a human monocyte-colony inhibitory factor (M-CIF) polypeptide (previously termed MIP1-.gamma. and chemokine .beta.1(CK.beta.1 or ckb-1)), and a macrophage inhibitory protein-4 (MIP-4), as well as MPIF-1, M-CIF and/or MIP-4 polypeptides themselves, as are vectors, host cells and recombinant methods for producing the same.

74 Claims, 53 Drawing figures

☐ 4. Document ID: US 5504003 A

Entry 4 of 4 File: USPT Apr 2, 1996

US-PAT-NO: 5504003
DOCUMENT-IDENTIFIER: US 5504003 A

TITLE: Macrophage inflammatory protein-3 and -4
DATE-ISSUED: April 2, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Li; Haodong	Germantown	MD	N/A	N/A
Ruben; Steven	Olney	MD	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Human Genome Sciences, Inc.	Rockville	MD	N/A	N/A	02

APPL-NO: 8/ 208339
DATE FILED: March 8, 1994

INT-CL: [6] C12N 5/10, C12N 15/12, C12P 21/06, A61K 38/00
US-CL-ISSUED: 435/240.2; 435/69.1, 435/252.3, 435/172.3, 435/320.1, 424/85.2, 424/93.2, 424/93.21, 530/350, 530/351, 514/2, 514/12, 536/22.1, 536/23.1, 536/23.5, 935/57
US-CL-CURRENT: 435/365.1; 424/85.2, 424/93.2, 424/93.21, 435/252.3, 435/320.1, 435/69.1, 514/12, 514/2, 530/350, 530/351, 536/22.1, 536/23.1, 536/23.5
FIELD-OF-SEARCH: 424/85.2, 424/93.2, 424/93.21, 435/69.1, 435/240.2, 435/252.3, 435/320.1, 435/172.3, 530/350, 530/351, 514/2, 514/12, 536/22.1, 536/23.1, 536/23.5, 935/57

REF-CITED:

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY
WO9002762	March 1990	WO
WO9205198	September 1991	WO
WO9200326	January 1992	WO
WO9200327	January 1992	WO
WO9213553	February 1992	WO
WO9309799	November 1992	WO

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Kwon et al., "cDNA sequences of two inducible T-cell genes," Proc. Natl. Acad. Sci., USA vol. 86, pp. 1963-1967, Mar., 1989.
Nakao et al., "Structures of Human Genes Coding for Cytokine LD78 and Their Expression," Mol. Cell. Biol., vol. 10, No. 7, pp. 3646-3658, Jul. 1990.

ART-UNIT: 184
PRIMARY-EXAMINER: Furman; Keith C.
ASSISTANT-EXAMINER: Kim; Hyosuk
ATTY-AGENT-FIRM: Olstein; Elliot M. Ferraro; Gregory D.

ABSTRACT:

There is disclosed a human macrophage inflammatory protein-3 (MIP-3) and a human macrophage inflammatory protein-4 (MIP-4) polypeptides and DNA (RNA) encoding such polypeptides. There is also provided a procedure for producing such polypeptides by recombinant techniques and for producing antibodies against such polypeptides. In the invention there is also provided antagonist/inhibitors against such polypeptides which inhibit the functioning of such polypeptides. Another aspect of the invention provides a combination of the polypeptides of the present invention and a suitable pharmaceutical carrier for providing a therapeutically effective amount of the polypeptides for the treatment of various associated diseases.

34 Claims, 7 Drawing figures

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Document Number 2

Entry 2 of 5 File: USPT Aug 3, 1999

Date filed Oct 28 1997 Richard Gregory et al

DOCUMENT-IDENTIFIER: US 5932210 A
TITLE: Recombinant adenoviral vector and methods of use

ABPL:
This invention provides a recombinant adenovirus expression vector characterized by the partial or total deletion of the adenoviral protein IX DNA and having a gene encoding a foreign protein or a functional fragment or mutant thereof. Transformed host cells and a method of producing recombinant proteins and gene therapy also are included within the scope of this invention. Thus, for example, the adenoviral vector of this invention can contain a foreign gene for the expression of a protein effective in regulating the cell cycle, such as p53, Rb, or mitosin, or in inducing cell death, such as the conditional suicide gene thymidine kinase. (The latter must be used in conjunction with a thymidine kinase metabolite in order to be effective).

BSPR:
Thus, for example, the adenoviral vector of this invention can contain a foreign gene for the expression of a protein effective in regulating the cell cycle, such as p53, Rb, or mitosin, or in inducing cell death, such as the conditional suicide gene thymidine kinase. (The latter must be used in conjunction with a thymidine kinase metabolite in order to be effective).

DEPR:
A recombinant adenovirus expression vector characterized by the partial or total deletion of the adenoviral protein ~~IX DNA~~ and having a gene encoding a foreign protein, or a functional fragment or mutant thereof is provided by this invention. These vectors are useful for the safe recombinant production of diagnostic and therapeutic polypeptides and proteins, and more importantly, for the introduction of genes in gene therapy. Thus, for example, the adenoviral vector of this invention can contain a foreign gene for the expression of a protein effective in regulating the cell cycle, such as p53, Rb, or mitosin, or in inducing cell death, such as the conditional suicide gene thymidine kinase. (The latter must be used in

conjunction with a thymidine kinase metabolite in order to be effective). Any expression cassette can be used in the vectors of this invention. An "expression cassette" means a DNA molecule having a transcription promoter/enhancer such as the CMV promotor enhancer, etc., a foreign gene, and in some embodiments defined below, a polyadentlyation signal. As used herein, the term "foreign gene" is intended to mean a DNA molecule not present in the exact orientation and position as the counterpart DNA molecule found in wild-type adenovirus. The foreign gene is a DNA molecule up to 4.5 kilobases. "Expression vector" means a vector that results in the expression of inserted DNA sequences when propagated in a suitable host cell, i.e., the protein or polypeptide coded for by the DNA is synthesized by the host's system. The recombinant adenovirus expression vector can contain part of the gene encoding adenovirus protein IX, provided that biologically active protein IX or fragment thereof is not produced. Example of this vector are an expression vector having the restriction enzyme map of FIGS. 1 or 4.

DEPR:
In one embodiment, the recombinant adenovirus expression vector has a foreign gene coding for a functional tumor suppressor protein, or a biologically active fragment thereof. As used herein, the term "functional" as it relates to a tumor suppressor gene, refers to tumor suppressor genes that encode tumor suppressor proteins that effectively inhibit a cell from behaving as a tumor cell. Functional genes can include, for instance, wild type of normal genes and modifications of normal genes that retains its ability to encode effective tumor suppressor proteins and other anti-tumor genes such as a conditional suicide protein or a toxin.

CLPR:
8. The composition of claim 1, wherein the foreign protein is a suicide protein or functional equivalent thereof.

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claim 12

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Database: US Patents Full-Text Database

Refine Search: L8 and L5

Search History

DB Name	Query	Hit Count	Set Name
USPT	L8 and L5	4	L9
USPT	cytosine deaminase or CD and replicat$ same compet$ same adenovir$ same vector	130	L8
USPT	cytosine deaminase or CD and L6	127	L7
USPT	L4 and L5	3	L6
USPT	E1B delet$ or E1B adj region adj delet$	9	L5
USPT	replicat$ same compet$ same adenovir$ same vector	65	L4
USPT	adenoviral adj vector same suicide gene or suicide protein	5	L3
USPT	adenoviral adj vector same tumor necrosis factor alpha or NTF alpha	1	L2
USPT	adenovir$ same tumor necrosis factor alpha or NTF alpha	7	L1

Document Number 1

Entry 1 of 4 File: USPT Aug 3, 1999

DOCUMENT-IDENTIFIER: US 5932210 A
TITLE: Recombinant adenoviral vector and methods of use

DEPR:
A further embodiment has a deletion of up to forty nucleotides positioned 3' to the E1a and E1b deletion and pIX and a foreign DNA molecule encoding a polyadenylation signal inserted into the recombinant vector in a position relative to the foreign gene to regulate the expression of the foreign gene.

DEPR:
This invention also provides a method for reducing the proliferation of tumor cells in a subject by introducing into the tumor mass an effective amount of an adenoviral expression vector containing an anti-tumor gene other than a tumor suppressor gene. The anti-tumor gene can encode, for example, thymidine kinase (TK) . The subject is then administered an effective amount of a therapeutic agent, which in the presence of the anti-tumor gene is toxic to the cell. In the specific case of thymidine kinase, the therapeutic agent is a thymidine kinase metabolite such as ganciclovir (GCV), 6-methoxypurine arabinonucleoside (araM), or a functional equivalent thereof. Both the thymidine kinase gene and the thymidine kinase metabolite must be used concurrently to be toxic to the host cell. However, in its presence, GCV is phosphorylated and becomes a potent inhibitor of DNA synthesis whereas araM gets converted to the cytotoxic anabolite araATP. Other anti-tumor genes can be used as well in combination with the corresponding therapeutic agent to reduce the proliferation of tumor cells. Such other gene and therapeutic agent combinations are known by one skilled in the art. Another example would be the vector of this invention expressing the enzyme cytosine deaminase. Such vector would be used in conjunction with administration of the drug 5-fluorouracil (Austin and Huber, 1993), or the recently described E. Coli Deo .DELTA. gene in combination with 6-methyl-purine-2' -deosribonucleoside (Sorscher et al 1994).

ORPL:
Austin et al., "A First Step in the Developement of Gene

Austin et al., "A First Step in the Developement of Gene Therapy for Colorectal Carcinoma: Cloning, Sequencing, and Expression of Escherichia coli Cytosine Deaminase," Eur. J. Cancer 27(4):462-467 (1991).

Claim 12

Document Number 2

Entry 2 of 3 File: USPT Jan 26, 1999

DOCUMENT-IDENTIFIER: US 5863904 A
TITLE: Methods for treating cancers and restenosis with P21

Gary Nabel

Filed 1995 Sept 26

DEPR:
The recombinant adenoviral vector, ADV-p21, was constructed by homologous recombination between sub360 genomic DNA, an Ad5 derivative with a deletion in the E3 region, and a p21 expression plasmid, pAd-p21. Briefly, the pAd-p21 plasmid was prepared by introducing the Hind III-XbaI fragment of a p21 expression vector utilizing the Rous sarcoma virus promoter (RSV) to regulate expression of p21 into the Bgl II site of pAd-Bgl II (Heichman & Roberts, Cell 79, 557-562 (1994)). The structure of these replication defective E1A, E1B deleted viruses was confirmed by Southern blotting. All recombinant viruses were propagated in 293 cells and purified as described (Davidson et al, 1993, Nature Gen. 3:219-223). Cesium chloride purified virus was dialysed against PBS, and diluted for storage in 13% glycerol-PBS solution to yield a final concentration of 1-3.times.10.sup.12 viral particles/ml (0.8-5.times.10.sup.10 pfu/ml). All stocks were sterilized with a 0.45 .mu.m filter and evaluated for the presence of replication competent adenovirus by infection at a MOI of 10 onto 3T3 cells. None of the stocks used in these experiments yielded replication-competent virus.

DEPR:
Cells were maintained in Dulbecco's modified eagle medium (DMEM) containing 10% fetal calf serum. The recombinant adenoviral vector, ADV-p21, was constructed by homologous recombination between sub360 genomic DNA, an Ad5 derivative with a deletion in the E3 region, and a p21 expression plasmid, pAd-p21. These recombinant adenoviral vectors have sequences in the E1A and E1B region deleted, impairing the ability of this virus to replicate and transform nonpermissive cells. Briefly, the pAd-p21 plasmid was prepared by introducing the Nru I and Dra III fragment from pRc/CMV-p21, kindly provided by Drs. D. Beach and G. Hannon (Xiong et al, Nature 366, 701 (1993); Serano et al, Nature 366, 704 (1993)) into the Bgl II site

of pAd-Bgl II (Davidson et al, Nature Genet. 3, 219 (1994)) which had the left hand sequence of Ad5 genome, but not E1A and E1B. Virus was prepared as described previously(ohno et al, Science 265, 781 (1994). The structure of these viruses was confirmed by Southern blotting. All recombinant viruses were propagated in 293 cells and purified as described (Davidson et al, Nature Genet. 3, 219 (1994)). Cesium chloride purified virus was dialysed against PBS, and diluted for storage in 13% glycerol-PBS solution to yield a final concentration of 1-3.times.10.sup.12 viral particles/ml (0.8-5.times.10.sup.10 pfu/ml). All stocks were sterilized with a 0.45 .mu.m filter and evaluated for the presence of replication competent adenovirus by infection at a MOI of 10 onto 3T3 cells. None of the stocks used in these experiments yielded replication-competent virus.

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Document Number 1

Entry 1 of 3 File: USPT Aug 3, 1999

DOCUMENT-IDENTIFIER: US 5932210 A
TITLE: Recombinant adenoviral vector and methods of use

DEPR:
A further embodiment has a deletion of up to forty nucleotides positioned 3' to the E1a and E1b deletion and pIX and a foreign DNA molecule encoding a polyadenylation signal inserted into the recombinant vector in a position relative to the foreign gene to regulate the expression of the foreign gene.

DEPR:
Recombinant human adenovirus vectors which are capable of expressing high levels of wild-type p53 protein in a dose dependent manner were constructed. Each vector contains deletions in the E1a and E1b regions which render the virus replication deficient (Challberg and Kelly (1979); Horowitz, (1991)). Of further significance is that these deletions include those sequences encoding the E1b 19 and 55 kd protein. The 19 kd protein is reported to be involved in inhibiting apoptosis (White et al. (1992); Rao et al. (1992)), whereas the 55 kd protein is able to bind wild-type p53 protein (Sarnow et al. (1982); Heuvel et al. (1990)). By deleting these adenoviral sequences, potential inhibitors of p53 function were removed through direct binding to p53 or potential inhibition of p53 mediated apoptosis. Additional constructs were made which have had the remaining 3' E1b sequence, including all protein IX coding sequence, deleted as well. Although this has been reported to reduce the packaging size capacity of adenovirus to approximately 3 kb less than wild-type virus (Ghosh-Choudhury et al. (1987)), these constructs are also deleted in the E3 region so that the A/M/N/53 and A/C/N/53 constructs are well within this size range. By deleting the pIX region, adenoviral sequences homologous to those contained in 293 cells are reduced to approximately 300 base pairs, decreasing the chances of regenerating replication-competent, wild-type adenovirus through recombination. Constructs lacking pIX coding sequence appear to have equal efficacy to those with pIX.

Document Number 2

Entry 2 of 7 File: USPT Dec 21, 1999

DOCUMENT-IDENTIFIER: US 6004942 A
TITLE: Methods for treating arthritis by administering an apoptosis regulator

DEPR:
Any of a variety of promoters can be used to drive apoptosis-regulating gene expression, including but not limited to endogenous promoters, constitutive promoters (e.g., cytomegalovirus, adenovirus, or SV40), inducible promoters (e.g., a cytokine promoter such as the interleukin-1, tumor necrosis factor-.alpha., or interleukin-6 promoter), and tissue specific promoters. In the case of rheumatoid arthritis, promoters for cytokine or metalloproteinase production or macrophage specific promoters (e.g., CD14 or CD68), or fibroblast specific promoters allow enhanced targeting to activated synoviocytes and leave normal resting cells unaffected.

Document Number 4

Entry 4 of 5 File: USPT Aug 4, 1998

DOCUMENT-IDENTIFIER: US 5789244 A
TITLE: Compositions and methods for the treatment of cancer using recombinant viral vector delivery systems

DEPR:
Examples of therapeutic genes are tumor suppressor genes and the suicide gene thymidine kinase. Examples of tumor suppressor genes are the retinoblastoma gene, either full length (p110.sup.RB) or retinoblastoma gene encoding mutant retinoblastoma proteins such as (p94.sup.RB or p56.sup.RB), mitosin, H-NUC, and p53. The composition of this invention comprises a therapeutically effective amount of a therapeutic gene, such as a tumor suppressor gene, contained in a recombinant viral vector delivery system in a buffer comprising a delivery-enhancing agent. Therapeutically effective amounts of the pharmaceutical composition comprising a therapeutic gene, such as the retinoblastoma tumor suppressor gene, in a recombinant viral vector delivery system formulated in a buffer comprising a delivery-enhancing agent will be administered in accord with the teaching of this invention. For example, therapeutically effective amounts of the retinoblastoma tumor suppressor gene in the recombinant adenoviral vector delivery system formulated in a buffer containing a delivery-enhancing agent are in the range of about 1.times.10.sup.7 particles/ml. to 1.times.10.sup.12 particles/ml. A preferred therapeutically effective amount of the retinoblastoma tumor suppressor gene in the recombinant adenoviral vector delivery system formulated in a buffer containing a delivery-enhancing agent is in the range of about 1.times.10.sup.9 particles/ml to 1.times.10.sup.11 particles/ml. A most preferred therapeutically effective amount of the retinoblastoma tumor suppressor gene in the recombinant adenoviral vector delivery system formulated in a buffer containing a delivery-enhancing agent is in the range of about 5.times.10.sup.9 particles/ml to 5.times.10.sup.10 particles/ml.

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adenoviral adj vector same suicide gene
or suicide protein
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USPT	adenoviral adj vector same tumor necrosis factor alpha or NTF alpha	1	L2
USPT	adenovir$ same tumor necrosis factor alpha or NTF alpha	7	L1

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Database: US Patents Full-Text Database

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Search History

DB Name	Query	Hit Count	Set Name
USPT	L10 and L5	2	L11
USPT	treat$ same adenovi$ same vector same chemother$ or immunosupp$	6930	L10
USPT	L8 and L5	4	L9
USPT	cytosine deaminase or CD and replicat$ same compet$ same adenovir$ same vector	130	L8
USPT	cytosine deaminase or CD and L6	127	L7
USPT	L4 and L5	3	L6
USPT	E1B delet$ or E1B adj region adj delet$	9	L5
USPT	replicat$ same compet$ same adenovir$ same vector	65	L4
USPT	adenoviral adj vector same suicide gene or suicide protein	5	L3
USPT	adenoviral adj vector same tumor necrosis factor alpha or NTF alpha	1	L2
USPT	adenovir$ same tumor necrosis factor alpha or NTF alpha	7	L1

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☐ 1. Document ID: US 6043086 A

Entry 1 of 4 File: USPT Mar 28, 2000

US-PAT-NO: 6043086
DOCUMENT-IDENTIFIER: US 6043086 A

TITLE: Neurotactin and uses therefor
DATE-ISSUED: March 28, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Pan; Yang	Brookline	MA	N/A	N/A

ASSIGNEE INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Millenium BioTherapeutics, Inc.	Cambridge	MA	N/A	N/A	02

APPL-NO: 9/ 143470
DATE FILED: August 28, 1998
PARENT-CASE:
This application is a continuation-in-part of U.S. Ser. No. 08/991,426, filed Dec. 16, 1997, now allowed which is a continuation-in-part of U.S. Ser. No. 08/851,160, filed May 5, 1997, still pending which is a continuation-in-part of U.S. Ser. No. 08/643,798 filed May 7, 1996, still pending. The contents of these applications are incorporated herein by reference in their entirety.

INT-CL: [7] C12N 5/06, C07K 16/24, C07K 16/25
US-CL-ISSUED: 435/335; 435/336, 530/388.23, 530/388.24
US-CL-CURRENT: 435/335; 435/336, 530/388.23, 530/388.24
FIELD-OF-SEARCH: 435/325, 435/335, 435/336, 530/388.23, 530/388.24, 530/868

REF-CITED:

FOREIGN PATENT DOCUMENTS